joint separate statement of Commissioners James H. Quello and Rachelle E. Chong in which they state, *"We find merit in the open, voluntary, industry-driven ANSI standard setting process."* Consequently, it is reasonable to expect that much of the key research findings which will unfold will be known first by industry. Yet years may pass until findings are published in peer reviewed journals, supporting studies completed, standard setting bodies meet and review, rules are proposed and comments taken, rules promulgated, and finally implementation occurs. Therefore, it is "the common law standard to use reasonable care" and applied through the means of tort liability which will meet a critical societal need of providing yet another key motivation for this important industry to use the information as it becomes available to it to act with care. Moreover, since much of the new research will be coming from industry, it is what this industry reports and publishes that may form key elements of new standards. Thus, the telecommunications industry is, to a large extent, determining the content of what standards may consider and what regulatory agencies will have available to review. In these circumstances it is clear that it is in the public interest that insofar as the industry is able to a large extent determine the research and its publication that will effect new standards, that at least the fear of tort liability will move them to use reasonable care, and undertake research to best assure harm is not caused.

Finally, to lessen the likelihood of the need for exercising tort liability or state or local jurisdiction, the Commission should adopt the standard of keeping exposures "as low as reasonably achievable," as this may help lessen states and local jurisdictions needing to set additional regulations to protect public safety in this area, and to help avoid tort liability actions. Hence, it is strongly encouraged that the Commission modify its rules and adopt the standard of keeping exposure 'as low as reasonably achievable' and support petitions and other requests to the Commission that it adopt this standard. Indeed, a similar finding was made by the State of Washington Legislature in its 1996 session, and in a bill which became law it is stated that the legislature finds that exposures from wireless telecommunications facilities *"should be kept as low as reasonably achievable while still allowing the operation of these networks."* [EHSB 2828, Sec. 1, passed March, 1996]. Similarly, in its January 11, 1994 letter to the Commission, NIOSH

recommended to the Commission that *"The standard should note that other health effects may be associated with RF exposure and that exposure should be minimized to the extent possible"* ; thus by so adopting such a standard the Commission would carry out its own policy to prefer "to defer to the expert federal health and safety agencies for guidance in this area,"[FCC OST Bulletin 65, 1985, pg. 4] and carry out its decision to place special emphasis on the recommendations and comments of Federal health and safety agencies..." [FCC Rule and Order 96-326, #28]. Moreover, such a standard is similar to regulations issued for regulating facilities emitting ionizing radiation under the licensing authority of the Nuclear Regulatory Commission whereby it requires to "make every reasonable effort to maintain radiation exposures, and releases of radioactive materials in effluents to unrestricted areas, as low as reasonably achievable." 10 CFR §20.1(c)(1983) as reported in Silkwood Id. at 465. Finally, concerning RF standards, the standard of the International Radiation Protection Association states, *"In view of our limited knowledge on thresholds for all biological effects, unnecessary exposure should be minimized."*[24] Thus, there is a strong precedent and explicit direction by NIOSH that indicates to be consistent with its policy of following the advice of health agencies that the Commission should include in its standard that, *"should be kept as low as reasonably achievable while still allowing the operation of these networks,"* to best serve the public interest.

Footnotes

1. J.O. de Lorge, "Operant Behavior and Rectal Temperature of Squirrel Monkeys During 2.45 GHz Microwave Radiation ," Radio Science, 14(6S), pp. 217-225, 1979
2. J.O. de Lorge and C.S. Ezell, "Observing-Responses of Rats Exposed to 1.28- and 5.62 GHz Microwaves, " Bioelectromagnetics, 1(2), pp. 183-198, 1980. Includes reference to exposure in #1.
3. D.S. Mitchell et al., "Hyperactivity and Disruption of Operant Behavior in Rats After Multiple Exposures to Microwave Radiation," Radio Science, 12(6S), pp.263-271, 1977
4. M.I. Gage, "Microwave Irradiation and Ambient Temperature Interact to Alter Rat Behavior Following Overnight Exposure," Journal of Microwave Power, 14 (4), p. 389-398, 1979
5. M.I. Gage et al, "Interaction of Ambient Temperature and Microwave Power Density on Schedule-Controlled Behavior in the Rat, "Radio Science, 17(5S), pp.179-184, 1982
6. J.R. Thomas et al, "Comparative Effects of Pulsed and Continuous-Wave 2.8 GHz Microwaves on Temporally Defined Behavior," Bioelectromagnetics, 3(2), pp.227-235, 1982.
7. J. Schrot et al, "Modification of the Repeated Acquistion of Response Sequences in Rats by Low-Level Microwave Exposure," Bioelectromagnetics, `1(1), pp. 89-99, 1980.
8. J.R. Thomas et al, "Microwave radiation and dextroamphetamine: Evidence of combined effects on behavior of rats," Radio Science, Vol. 14, No. 6S, pg 253-258, 1979

9. S. Szmigielski et al, "Accelerated Development of Spontaneous and Benzopyrene-Induced Skin Cancer in Mice Exposed to 2450 MHz Microwave Radiation," Bioelectromagnetics, 3(2), pp. 179-191, 1982.
10. W. Switzer et al, "Long Term Effects of 2.45 GHz Radiation on the Ultrastructure of the Cerebral Cortex and on the Hematologica Profiles of Rats," Radio Science, 12(6S), pp 287-293
11. E. Berman, "Observations of Mouse Fetuses After Irradiation with 2.45 GHz Microwaves," Health Physics, 35, pp. 791-801, 1978
12. K. Oscar et al.,"Microwave Alteration of the Blood-Brain Barrier System in Rats," Brain Research, 126, pp. 281-193, 1977
13. V. Belokrinitskiy, "Destructive and Reparative Processes in Hippocampus with Long Term Exposure to Nonionzing Microwave Radiation," in U.S.S.R. Report, Effects of Nonionizing Electromagnetic Radiation, No. 7, JPRS 81865, pp. 15-20, Sept. 27, 1982.
14. O.P. Gandhi et al, "Absorption of Millimeter Waves by Human Beings and its Biological Implications," IEEE Transactions on Microwave Theory and Techniques MTT-34(2), pp.228-235
15. Justesen, D. et al.,"A Comparative Study of Human Sensory Thresholds: 2450 MHz Microwaves vs Far-Infrared Radiation," Bioelectromagnetics, 3(1), pp.117-125, 1982.
16. American National Standards Institute Standard ANSI Z136.1-1993, Section 8.0, previous version is ANSI Z136.1-1986
17. W.R. Deichman,"Acute Effects of Microwave Radiation on Experimental Animals (24,000 MHz), Journal of Occupational Medicine, 1,pp.369-381, 1959
18. W.R. Deichman, "Effect of Microwave Radiation on the Hemopoietic System of the Rat," Toxicology and Applied Pharmacology,6(1),pp.71-77
19. O.P. G---dhi "Advances in Dosimetry of Radiofrequency Radiation and Their Past and Projected I
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21. EPA l
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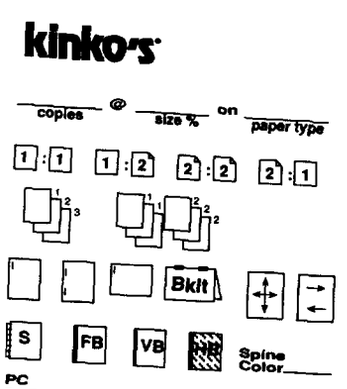

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corrections made. These concerns are in addition to the basic regulatory ... es not to lose jurisdiction over regulatory or tort liability law they now have. The above only further supports the justification and priority states give to RF regulatory and tort liability jurisdiction.

Based upon consideration of what Congress intended, past court decisions, and what is in the public interest, states should retain their current jurisdiction over non-personal wireless

services and no additional preemptions should be added to that designated by Congress. The arguments brought by petitioners to add further preemption of state regulatory and tort liability law have been made to Congress and were already considered in their broad legislation which is the Telecommunications Act of 1996. Since the telecommunications industry is a key source of new research, research which will likely drive future standards, it is contrary to the public interest that those who provide much of the research and recommend standard criteria, should then be released from liability. In general, the protection of common law liability is dear; and Congress provided in Sec. 253 of the Telecommunications Act that States may impose requirements to protect public safety, clearly in this area, tort liability law is a central protection. Noting that the Telecommunications Act of 1996 provisions to address many of the concerns of Petitioners #1 and #2 have only recently gone into effect, there is no basis now to grant these petitions to further preempt critical areas from state authority; this will be contrary to the public interest.

Respectfully submitted,

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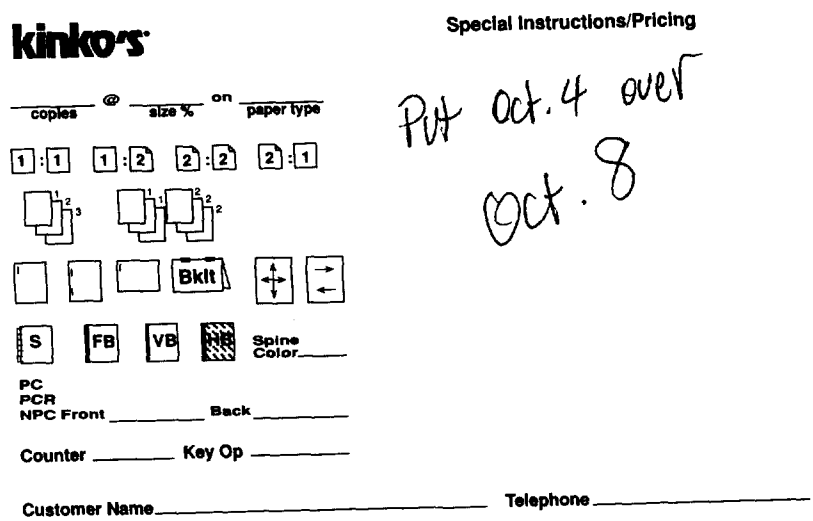
I declare under penalty of perjury that the foregoing is true and correct. Executed on October 8, 1996.

David Fichtenberg

Submitting one original and fourteen copies to the Secretary, Federal Communications Commission, 1919 M Street, N.W., Room 222, Washington D.C., 20554

Plus one copy to each of named petitions on title page

EXHIBIT A: Clarification letter of October 8, 1996 by Norbert Hankin of EPA of the meaning of "adequate protection" mentioned in the letter of July 25, 1996 of Carol M. Browner to the Federal Communications Commission. [email document, official letter is being prepared]



TO: DAVID FICHTENBERG
FAX: 206-722-8306

FROM: NORB HANKIN
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MAIL CODE 6604J
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3 pages follow

David Fichtenberg
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Dear Mr. Fichtenberg:

Thank you for your E-mail letter of October 2, 1996, that asks for clarification of a statement in the letter (July 25, 1996) from Environmental Protection Agency (EPA) Administrator Carol M. Browner to Federal Communications Commission (FCC) Chairman Reed E. Hundt. You request explanation of the statement, "this new approach is consistent with our comments made in 1993 and addresses our concerns about adequate protection of public health," with questions that pertain to acute thermal exposures, long-term (chronic) nonthermal exposures, and specific absorption rate (SAR).

The aforementioned letter was a response to a Mr. Hundt's request (July 1, 1996) that EPA review the FCC's approach to developing new guidelines. The EPA discussion of the original FCC Notice of Proposed Rulemaking, "Guidelines for Evaluating the Environmental Effects of Radiofrequency (RF) Radiation, ET Docket No. 93-62," resulted in recommendations to the FCC (November 9, 1993). One of those recommendations was that the FCC adopt the exposure criteria recommended by the National Council on Radiation Protection and Measurements (NCRP) in NCRP Report No. 86, "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," instead of the 1992 ANSI/IEEE standard that was originally proposed.

The FCC concluded its rule-making activity in August 1996, and adopted RF radiation exposure limits that are generally based on the NCRP guidelines as was recommended by EPA. In addition the FCC specified (in the introduction to its Report and Order FCC 96-326) that the maximum permissible exposure limits adopted are based on exposure criteria quantified in terms of specific absorption rate, and that the SAR limit is 4 watts per kilogram (W/kg).

EPA was very specific in our 1993 comments regarding the sufficiency of available information (on the health effects of RF radiation) to provide a basis for developing exposure standards. In the context of those comments, the FCC's resulting rule that generally followed the NCRP guidelines, and the FCC's explicit statement that the limits adopted are based on the SAR limit of 4 W/kg, EPA believes that our concerns about adequte protection of public health were addressed by the FCC. The FCC does not claim that their new exposure guidelines provide protection for effects to which the 4W/kg SAR basis does not apply.

A key conclusion of EPA's Radiofrequency Radiation Conference, April 1993 (see "Summary and Results of the April 26-27, 1993, Radiofrequency Radiation Conference," Vol.1: Analysis of Panel Discussions, EPA Report 402-R-95-009, March 1995) is

that "There is sufficient information on thermal exposure/effects on which to base a standard. However, participants generally felt that more information needs to be obtained on nonthermal effects." This is reflected in EPA's November 1993 comments to the FCC. These include the following:

"While studies continue to be published describing biological responses to nonthermal ELF-modulated RF radiation, the effects information is not yet sufficient to be used as a basis for exposure criteria to protect the public against adverse human health effects."

"It is clear that the adverse effect threshold of 4 W/kg is based on acute exposures (measured in minutes or a few hours) that elevate temperature in laboratory animals including nonhuman primates, and not on long-term, low-level (non-thermal) exposure. Only a few chronic exposure studies of laboratory animals and epidemiological studies of human populations have been reported. The majority of these relatively few studies indicate no significant health effects are associated with chronic, low-level exposure to RF radiation. This conclusion is tempered by the results of a small number of reports suggesting potentially adverse health effects (cancer) may exist (...).

"The thesis that the 1992 ANSI/IEEE recommendations are protective of all mechanisms of interaction is unwarranted because the adverse effects level in the 1992 ANSI/IEEE standard is based on a thermal effect."

"While there is general, although not unanimous, agreement that the data base on low-level, long-term is insufficient to provide a basis for standards development, some contemporary guidelines state explicitly that their adverse-effect level is based on an increase in body temperature (NRPB 1993). Furthermore they do not claim that the exposure limits protect against both thermal and nonthermal effects."

With this background established, I will proceed to provide my responses to your other questions.

Q. Is it correct to conclude that the "adequate protection of public health" noted above, refers to "protecting against thermally related effects in humans?"

A. As I have previously noted, while there is sufficient information on thermal exposure/effects on which to base a standard, the data base on low-level, long-term exposure is insufficient to provide a basis for standards to protect the public against adverse human health effects that may result from long-term, nonthermal exposures. Both the NCRP and ANSI/IEEE standards are thermally based, and do not apply to chronic, nonthermal exposure situations. The statement refering to "adequate protection" pertains to thermally

related effects.

Q. Is it still correct that adverse effect level of 4 W/kg is based on acute exposures that elevate temperature in laboratory animals including nonhuman primates, and not on long-term, low-level (non-thermal) exposure.

A. Yes

Q. Is it correct that the "adequate protection" EPA refers to in its July 25, 1996 letter pertains to protection provided for the effects which occurred due acute exposures, and not necessarily to effects reported to occur below the 4W/kg threshold level?

A. We are referring to exposures that are acute, thermal exposures, not non-thermal, chronic exposures. The SAR limit to which the whole-body exposure limits for the public are related is 0.08 W/kg due to the use of a factor of 50 uncertainty factor applied to the 4 W/kg basis.

Q. Is it correct that "adequate protection" of public health: pertains to thermally related health effects, and not necessarily to the nonthermal effects noted in the 1993 EPA letter?

A. Yes

Q. In view of 1993 comments, does adequate protection pertain to microwave hearing?

A. In that the 'microwave hearing effect' has not been established as a health effect, our statement with regard to "adequate protection" would not pertain to microwave hearing.

This E-mail will be followed by a more formal letter reply to your inquiry.